NITROMETHANE EXPLOSIVES

It has become fairly well known over the last few years that a simple and powerful high explosive can be made by pouring liquid nitromethane into powdered ammonium nitrate or by adding various liquid sensitizers to nitromethane. Unfortunately, as this knowledge spread, the ready supply of nitromethane dried up. Chemical companies that once stocked technical-grade NM at less than ten dollars a pint now sell only reagent grade at thirty-five dollars or more a pint. These formerly cheap two-component explosives are now prohibitively expensive, except as manufactured items (e.g., Kinestik by the Atlas Powder Company).

Even the use of nitromethane in conventional industry is now controlled. The only place it can be found in any reasonable concentration is in model racing fuels. A large, well-stocked radio control racing shop will have fuels containing up to 60 percent NM, the remainder being methanol and a little cylinder lubricant. The 60-percent NM may be removed from the fuel by fractional distillation under vacuum, a relatively simple process once you know how to do it.

Due to this scarcity of NM, methods have been found to reduce the amount needed while not seriously degrading the performance of the explosive. One way is to mix another nonreacting hydrocarbon with the NM so that less of the scarce material is needed. Trichloroethane (a common cleaning fluid) has proven very useful in stretching the supply of NM. It gave excellent results in testing, using commercial Kinestik and 70-percent dynamite as standards. It was found that by varying the amount of liquid sensitizer in the mixture, different levels of powder could be obtained (see chart).

If you don't want to bother with separating the NM from the fuel, the following formula can be used: fifty parts ammonium nitrate and seven parts 55-percent fuel, by weight. This can be detonated with a No. 6 blasting cap. The following chart is a collection of mixtures that either reduce the amount of NM needed or increase its power.

AN/NM EXPLOSIVE STEEL PLATE DENT TEST

TEST	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
Granular AN	40	40	40	40		40	40	40	40	
Nitromethane	4	6	7	9		2.8	4	5	5.5	
Trichloroethane	3	3	3	3		2.8	4	5	5.5	
Kinestik Solid					49					
Kinestik Liquid					12					
70% Dynamite										50
Depth of Dent in Steel Plate (in .001 inches)	58	70	90	103	100	44	54	68	70	52

Note: All components are by weight.

All mixtures were contained in a 1 1/8-inch diameter plastic tube and initiated with a No. 6 blasting cap. As you can see, the performance was not proportional to the amount of activating liquid used. For example, test #8 used 25 percent more liquid and achieved only a slight increase in power over test #7. All of these explosives are quite volatile and will become inactive in the open air within about fifteen minutes. Therefore, they should always be used in sealed containers.

Incidentally, Kinestik solid is finely powdered AN, while Kinestik liquid is believed to be 95 percent nitromethane and 5 percent nitropropane.

The performance of these types of explosives can be improved by the addition of 1 to 5 percent water to the powdered AN. When the water is removed, it leaves a porous structure that is resistant to settling and compaction. This absorbs the NM more evenly and gives a consistent sectional density for peak performance.

This is accomplished by spreading the powdered AN on a nonporous surface and evenly spraying the required amount of water over it. Allow about five minutes for the water to soak in and pour it into a glass jar or other charge container. Place the container in an oven on low heat until the water has evaporated completely. Remove from the oven and seal. When you are ready to use the charge, just remove the lid and pour in the NM carefully. Allow five minutes or so for it to mix evenly. Kinestik uses a special pink dye in the liquid to show when it is properly mixed, which might be worth considering.